

ARGUMENTS

The Office Action mailed July 24, 2007 has been carefully considered. Within the Office Action Claims 1-3, 6, 8-10 and 12-14 have been rejected. The Applicants have amended Claims 1, 11 and 14. In addition, Applicants have added new dependent claims 15 and 16. Reconsideration in view of the following remarks is respectfully requested. A three (3) month extension fee is included with this Reply.

Objection to Claim 11

Claim 11 has been objected to in the present office action. Applicants have amended Claim 11 to now be dependent on Claim 14. Withdrawal of the objection is respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 1, 2, 3, 8, 12, 13, and 14 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Sickmiller. This rejection is respectfully traversed.

In determining obviousness four factual inquiries must be looked into in regards to determining obviousness. These are determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims in issue; resolving the level of ordinary skill in the pertinent art; and evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1 (1966); KSR Int'l Co. v. Teleflex, Inc., No 04-1350 (U.S. Apr. 30, 2007) (“ Often, it will be necessary . . . to look into related teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to

determine whether there was an **apparent reason** to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis **should be made explicit.**") (emphasis added).

Sickmiller describes depositing a support layer such as polymer on the thin film layer, wherein the support layer maintains the structural integrity of the thin film layer; attaching a rigid carrier superstrate to the support layer; and removing at least a portion of the substrate, wherein the thin film layer remains attached to the carrier superstrate via the support layer. After removing the substrate in Sickmiller, the thin film layer is attached to a host substrate, and the carrier superstrate is removed from the thin film layer to leave the thin film layer attached to the host substrate. Removing the carrier superstrate from the thin film layer can include mechanically detaching the carrier superstrate from the thin film layer, such that only selected segments of the thin film layer remain attached to the host substrate. (Sickmiller, Abstract).

However, Sickmiller does not teach that the devices are bonded onto the target substrate using direct molecular gluing, as recited in Claims 1 and 14. The devices in Sickmiller are attached to the target substrate by a bonding material 30 such as epoxy, solder, etc. (Sickmiller, Col. 5, Lines 25-28; Figs. 6-9). The removal process in Sickmiller is capable of being performed because of the weak adhesive bond between the selected thin film devices 20a and the intermediate carrier superstrate 18 (Sickmiller; col. 5, Lines 22-66). Further, a polymer 16 is deposited and is a weak adhesive bond, e.g. in the form of domes to allow the bond to be weak and facilitate separation (Sickmiller, Col. 3, Lines 1-44). Consequently, the process in Sickmiller is based on two surfaces having adhesives instead of a coupling between a surface and a surface covered with a degraded adhesive with direct molecular bonding. Accordingly, Sickmiller does

not teach or suggest that the devices are coupled or bonded to the target surface using direct molecular gluing, as recited in Claims 1 and 14.

In addition, Applicants describe in the present specification that the glue layer 32 is degraded before the element-to-be-transferred 18 is bonded onto the target substrate by a second bonding step. Degrading the glue layer 32 before the transfer to the target substrate has several advantages and is not taught in Sickmiller. First, the second bonding step between the elements 18 and the target substrate 40 is not affected by the prior degradation, but the same is not true where the degradation of glue is performed after the transfer step. The second bonding method is a molecular bonding process (Claims 1 and 14) which may require a follow up thermal treatment (Claims 15 and 16). In the embodiment where the second bonding step is a molecular bonding process, the reinforced thermal treatment of a non-degraded glue layer would make it difficult to remove the handle substrate 30. This is because the glue layer 32 would be reinforced by the thermal treatment, thereby further securing the bond between the handle and the components. Accordingly, it is important to degrade the glue layer 32 before applying the second bonding step which is the opposite of that taught in Sickmiller.

Instead, Sickmiller describes that once the devices 20 are aligned with the bonding material 30 on substrate 28 and brought into contact, the bonding material 30 is cured thereby bonding a selected number of devices 20 to substrate 28. Then, as shown in Fig. 9, the intermediate carrier 18 is pulled away from substrate 28, thereby breaking the adhesive bond between the selected devices 20a and the intermediate carrier 18. Thus, the selected devices 20a remain attached to substrate 28 (Sickmiller from col. 5, Lines 1-57 to col. 6, Lines 1-5). Sickmiller describes that before breaking the adhesive bond between the intermediate carrier 18 and the polymer 16, the adhesive bond can be weakened. In other words, the weakening step in

Sickmiller occurs **after** the selected devices 20a are transferred to the new substrate. Id. (Emphasis added). Accordingly, Sickmiller does not teach each and every element/limitation of Claims 1 and 14 to render them obvious. For at least these reasons, Claims 1 and 14 are allowable over Sickmiller.

Some of claims 2, 3, 6, and 8-13 have been rejected as being allegedly unpatentable over Sickmiller in light of other prior art references. Claims 2, 3, 6, and 8-13 are dependent on Independent Claims 1 and 14. As stated above, Claims 1 and 14 are allowable over Sickmiller. Accordingly, Claims 2, 3, 6, and 8-13 are allowable for being dependent on respective allowable base claims.

New Claims

The Applicants have added new dependent claims 15 and 16 to the present application. The Applicants believe that new dependent claims 15 and 16 is fully supported by the specification in Paragraph [0067] and no new matter has been added. Allowance of new Claims 15 and 16 is respectfully requested.

Conclusion

It is believed that this reply places the above-identified patent application into condition for allowance. Early favorable consideration of this reply is earnestly solicited. If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698. A three (3) month extension fee is included with this reply.

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Respectfully submitted,



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